



The Member Secretary,
Jharkhand State Pollution Control Board,
T.A. Division (Ground Floor),
H.E.C. Dhurva, Ranchi – 834004
Jharkhand

WBD/EMC/4016/082/19
Date: 11.09.2019

Subject: Submission of Environmental Statement of West Bokaro Colliery unit of West Bokaro Division, Tata Steel Limited for the year 2018-19

Dear Sir,

Please find enclosed herewith the duly filled "Environmental Statement" (Form-V) of **West Bokaro Colliery unit** of West Bokaro Division, Tata Steel Ltd. for the year 2018-19.

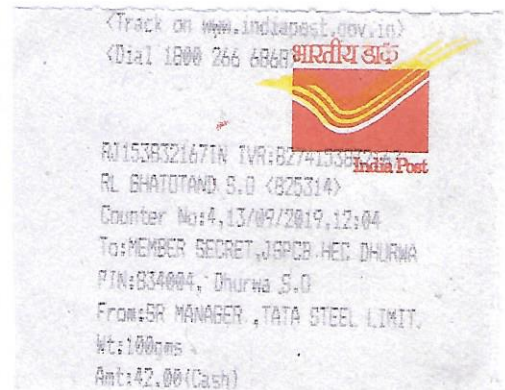
Kindly acknowledge the same & oblige.

Thanking you,
Yours sincerely,

Sr. Manager (Environment Management)
West Bokaro Division
Tata Steel Ltd.

Encl: As Above

Copy to: The Regional Officer, Jharkhand State Pollution Control Board, PTC Chowk, Matwari, Hazaribagh – 825301 (Jharkhand)



TATA STEEL LIMITED

West Bokaro Division Ghatotand Jharkhand 825 314 India

Tel 91 6545 262356 (O) Fax 91 6545 262221 262172

Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001

Tel 91 22 66658282 Fax 91 22 66657724

Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

FORM - V
(See Rule -14)

ENVIRONMENT STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st MARCH, 2019

UNIT: WEST BOKARO COLLIERY, TATA STEEL LIMITED

PART - A

- 1 Name and address of the owner/ occupier of the industry, operation or process : Mr. Anurag Dixit,
Chief (Q-SEB),
West Bokaro Colliery
TATA Steel Limited, P.O.- Ghatotand
Dist. Ramgarh, Jharkhand-825314
- 2 Industry Category : Major
- 3 Production Capacity : 7 MTPA Raw Coal
- 4 Year of Establishment : 1948
- 5 Date of last Environmental Statement submitted. : 20th September 2018

PART - B

WATER AND RAW MATERIAL CONSUMPTION

i. Water Consumption (m3/d):

Process	: 35.92
Cooling/ Spraying in mine pits	: 1659.59
Colony	: 8375.15

Name of the product	Process water consumption per product output (m3/ton)	
	During the Previous Financial Year (2017-18)	During the current Financial Year (2018-19)
Raw Coal	0.096 (Process + Spraying)	0.117 (Process + Spraying)

ii. Raw Material Consumption:

Name of Raw materials	Name of the product	Consumption of Raw Material per unit of output	
		During previous financial year (2017-18)	During current financial year (2018-19)
Explosives (Slurry Emulsion) (Both Coal + Overburden)	Raw Coal	0.128 kg/ton*	0.127 kg/ton

*in FY18 Environmental Statement FY18 data was 0.25 which was calculated mistakenly and is corrected here as 0.128

PART - C

POLLUTION DISCHARGES TO ENVIRONMENT/ UNIT OF OUTPUT (PARAMETERS AS SPECIFIED IN THE CONSENT ISSUED)

Pollutants	Quantity of pollutants discharged (mass /day)	Concentration of pollutants in discharges (mass / volume)	Percentage of variation from prescribed standards with reason
Water	Zero Effluent Discharge is maintained. Mine water is being used in industrial and domestic purpose after treatment. Only during monsoon season mine water is pumped out to water body after proper settling.		

Pollutants	Quantity of pollutants discharged (mass /day)	Concentration of pollutants in discharges (mass / volume)	Percentage of variation from prescribed standards with reason
Air	Air quality is monitored and found within prescribed limit. Details for FY'19 are as follows: AAQ Report: Core Zone		
	Parameter	Location Q-AB	Location Q-SE
	SPM	406.74	412.79
	RPM	175.88	180.84
	PM10	48.47	66.59
	PM2.5	29.88	40.29
	SO2	24.88	18.91
	Nox	42.25	44.61
	All values are in ($\mu\text{g}/\text{m}^3$)		
	AAQ Report: Buffer Zone		
	Parameter	Pundi	Banji
	PM10	55.58	51.96
	PM2.5	30.44	29.88
	SO2	16.99	17.29
	Nox	32.41	30.80
	All values are in ($\mu\text{g}/\text{m}^3$)		
	This is an opencast mine and does not have single point source of air pollutants. So, the quantity of air pollutants discharged in Kg/day cannot be ascertained. The above data shows the average ambient air quality during FY-19.		

PART - D
HAZARDOUS WASTE

[as specified under Hazardous & Other Waste (Management & Transboundary Movement) Rules, 2016]

Hazardous Waste	Total Quantity (kg)	
	During the previous financial year (2017-18)	During the current financial year (2018-19)
(a) From Process		
1. Used Lead Acid Battery	1. 21.80 ton	1. 16.99 ton*
2. Used lubricating Oil	2. 324 KL	2. 246 KL
3. Oil soaked cotton (jute)	3. 8.18 ton	3. 8.18 ton
4. Discarded Chemical Container	4. 50 nos.	4. 52 nos.
5. Non-ferrous scrap	5. Nil	5. Nil
(b) From Pollution control facilities	Nil	Nil

*Previously Used Lead Acid Battery was submitted in nos., which is corrected in tons.

PART - E
SOLID WASTE

Solid waste from this mine is generally of two categories i.e. Overburden/rejects removed during mining operations.

Solid Wastes		Total Quantity (kg)	
		During the previous financial year (2017-18)	During the current financial year (2018-19)
(a)	From Process: • From Mining as Overburden	188.91 lakh m ³	189.69 lakh m ³
(b)	From pollution control facilities	Nil	Nil
(c)	I. Quantity recycled or reutilized within the unit • Overburden	• 188.91 lakh m ³ Entire OB is dumped inside mine pit	• 189.69 Lakh m ³ Entire OB is dumped inside mine pit
	II. Sold	Nil	Nil
	III. Disposed	100%	100%

PART - F

THE CHARACTERISTICS (in terms of composition and quantum) OF HAZARDOUS AS WELL AS SOLID WASTES AND INDICATE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES

Category of Waste	Characteristics	Quantity	Disposal Practice
Solid Waste Over Burden	Non-coal material (Solid)	- 189.69 lakh m ³	- Dumped above and below ground.
Hazardous Waste 1. Used lead acid Battery –	Lead acid Battery (Solid)	1. 8.18 ton	1. Disposed off to authorized recycler.
2. Used lubricating Oil	Used Oil (Liquid)	2. 246 kl	2. Disposed off to authorized recycler.
3. Oil soaked cotton (jute)	Used Cotton (Solid)	3. 8.18 kg	3. Storage in impervious bin.
4. Non-ferrous scrap	Non- Fe, Scrap (Solid)	4. Nil	4. Disposed off to authorized agencies.

PART - G

IMPACT OF POLLUTION ABATEMENT MEASURES TAKEN ON CONSERVATION OF NATURAL RESOURCES AND ON THE COST OF PRODUCTION

- Adequate dust suppression arrangement is made in haul roads. Dust suppression with chemical dosing is adequately practiced in area, which not only reduce the water consumption but also effectively control the dust.
- Efforts were made to reduce the consumption of lubricant oil used in Heavy Mining Equipment's, by timely maintenance, arresting leakages and eliminating spillages. Similarly, attempts were also made to reduce the consumption of electricity in operations. In colony and offices, some electrical light points have been replaced with solar lights to save consumption of electricity.
- Sewage Treatment Plant (STP) is working smoothly in the Mukundabeda.
- The combined impact due to implementation of pollution prevention and control measures on cost per tonne of ROM coal, of entire West Bokaro Division (Washery, PH, Mines, Eng. services, Logistic, etc.) is Rs. 87.84.

In addition to the above Tata Steel Rural Development Society (TSRDS) is engaged in peripheral developmental activities in villages around the mine. The projects of the Society include irrigation and agricultural extension projects, plantation programmes, installation of solar street lights and illuminate villages on through low cost, construction of

ponds in support to provision of irrigation water and for other domestic use and in recharging groundwater by arresting the flow of rainwater in downstream, creation of SAVE FOREST groups, civic amenities development, medicare and health education, rural sports, skill development and promotion of rural cultural activities.

PART-H

ADDITIONAL MEASURES/ INVESTMENT PROPOSAL FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT OF POLLUTION, PREVENTION OF POLLUTION

- Greenery over abandoned overburden, dump yard, in pit dump area practiced which is a continuous process.
- Green belt all along the safety zone is being done.
- Use of surfactant with water to increase moisture retention time of haul road, which consequently reduces water consumption.
- Online Ambient Air Quality monitoring is being practiced.
- During monsoon 2019, we are having the proposal to plant 50,000 saplings in available sites within the lease area.
- ₹ 100.00 lakhs have been planned to be spent towards buying scientific equipment and strengthening the environmental laboratory.
- Pilot Project for the stabilizing the dump slopes is under progress.
- Implementation of wet drilling interlocking system in the new drill machine.
- Implementation of electronic detonator system in blasting to reduce ground vibration and fly rock.
- Water Mist Canon has been deployed at highwall mining area.
- Additional fixed water sprinkling system installation work started on the permanent haul roads.
- Seed balls have been spreaded in the dump slopes for the stabilization.

PART-I

ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

- West Bokaro Division of TATA Steel Ltd. is committed to improve safety and environment by strictly practicing Environment Management System (ISO:14001). Various programs are arranged such as Sustainability Month, Green Month, World Environmental Day, World River Day, Earth Day, Biological Diversity Day, Forestry Day, World Water Day, Van Mohotsav for public awareness. The mine is also certified to ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007.
- One pilot project of Butterfly, Hibiscus and Medicinal Park on mined-out area is ongoing practice followed for generation of self-employment and environmental protection through economic benefit.
- For biodiversity conservation and sustainable developed, a study along with IUCN has been initiated in all mining clusters and a sustainable development policy developed at group level is strictly practiced in all sites.
- Entire mining operation is targeting for reduction in consumption of natural resources such as fresh water, Diesel, explosive & lube to conserve natural resources & minimize impact on environment.
- The Company is having a full-fledged Environmental Management Department with personnel from relevant fields to take care of all environmental aspects relating to the mines of TATA STEEL. This department has in-house capabilities for monitoring various environmental parameters and suggesting to the management for necessary abatement measures.



**Mr. Anurag Dixit, Chief (Q-SEB)
West Bokaro Colliery, TATA Steel Limited,
P.O. - Ghatotand, Dist.- Ramgarh, Jharkhand - 825314**